



GLOBAL AGENDA FOR  
SUSTAINABLE LIVESTOCK (GASL)

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# QUELLE UTILITÉ POUR UN MODÈLE D'ÉVALUATION DES MULTIPLES FONCTIONS ET VALEURS DU PASTORALISME ?

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**Colloque P2CG, Dakar, 23 Novembre 2017**

## Plan

1. *Introduction*
2. *Why looking for a diversity of functions and values of Pastoralism?*
3. *Methodology*
4. *Result : A Conceptual Model on Multifunctionality (MCM) of Pastoralism*
5. *Usefulness and relevance of the MCM*
6. *Next steps*



## 1. Introduction

- *Pastoralism : Traditional and static system, Poor productivity, negative environmental impact, Poor people (1980-1990s)*
- *High resilience (2000s)*
- *Agroecological transition of agriculture (2010s)*
- *Not only productive function : Ecosystem services*
- *Multifunctionality of Pastoralism (Hervieu 2002) >>> GASL*



# GASL Action Network : Restoring values to grassland

***“To maintain, restore and enhance environmental and economic value of grasslands, while promoting their social and cultural functions globally”.***



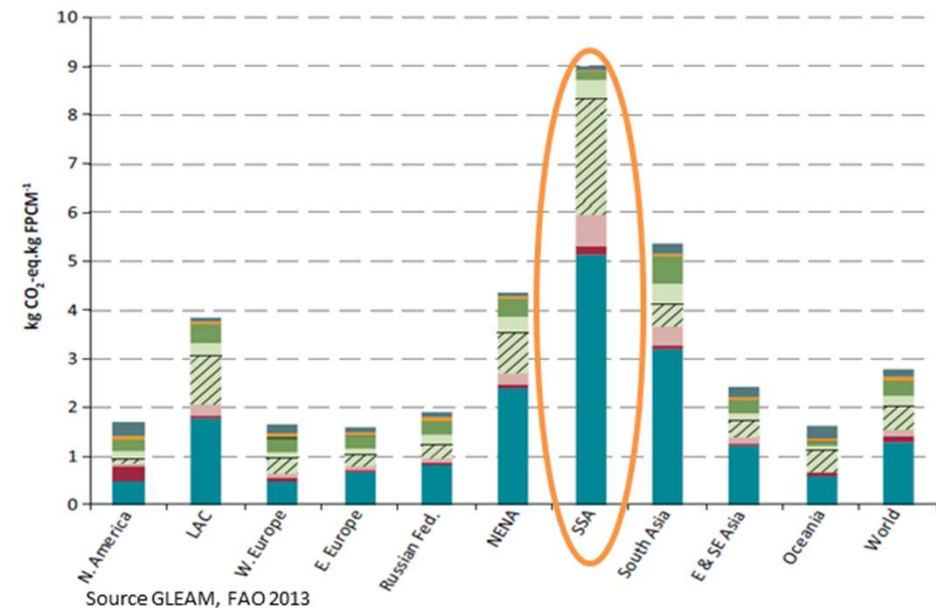
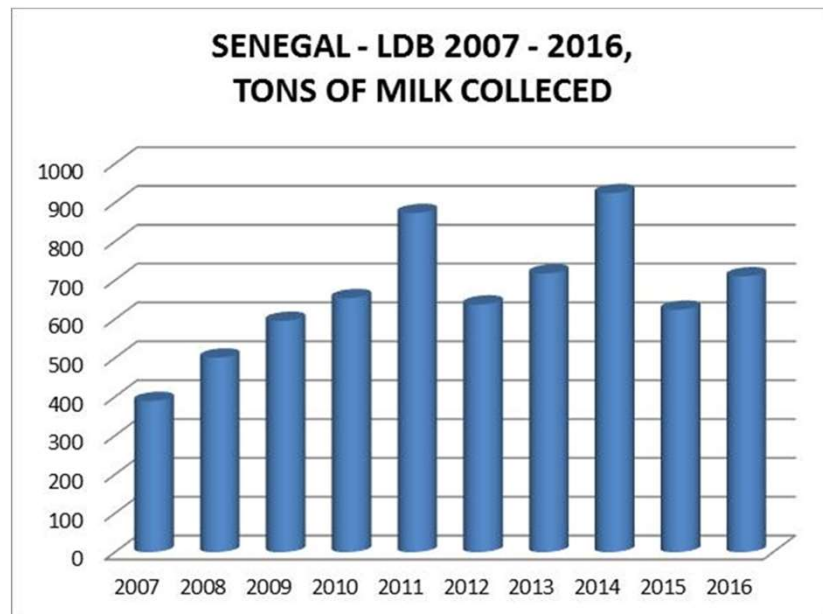
**9 SDGs**



7th Multi-Stakeholder Partnership (MSP) meeting, Addis  
Ababa, May 9th 2017

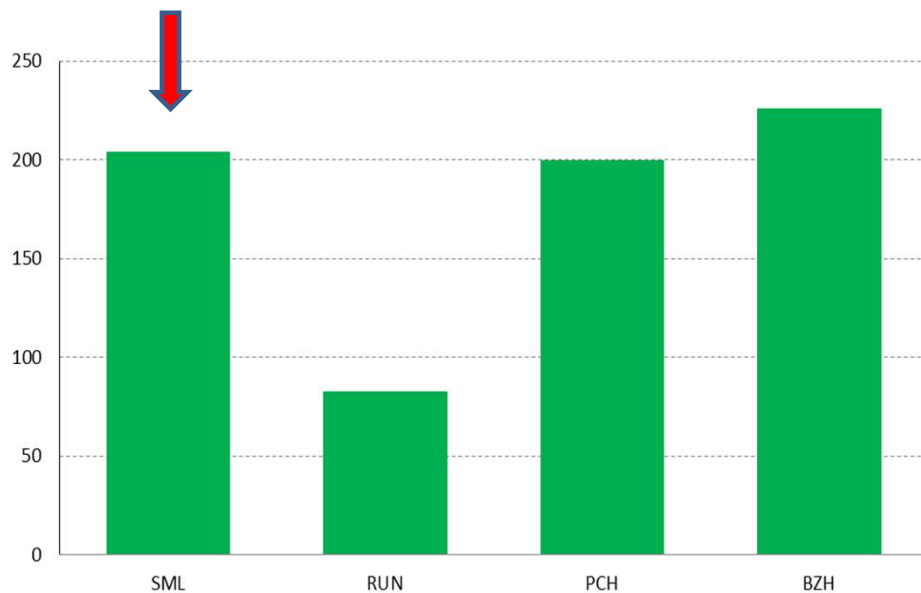
## 2. Why looking for Multifunctionality of Pastoralism?

- Individual functions of pastoralism :

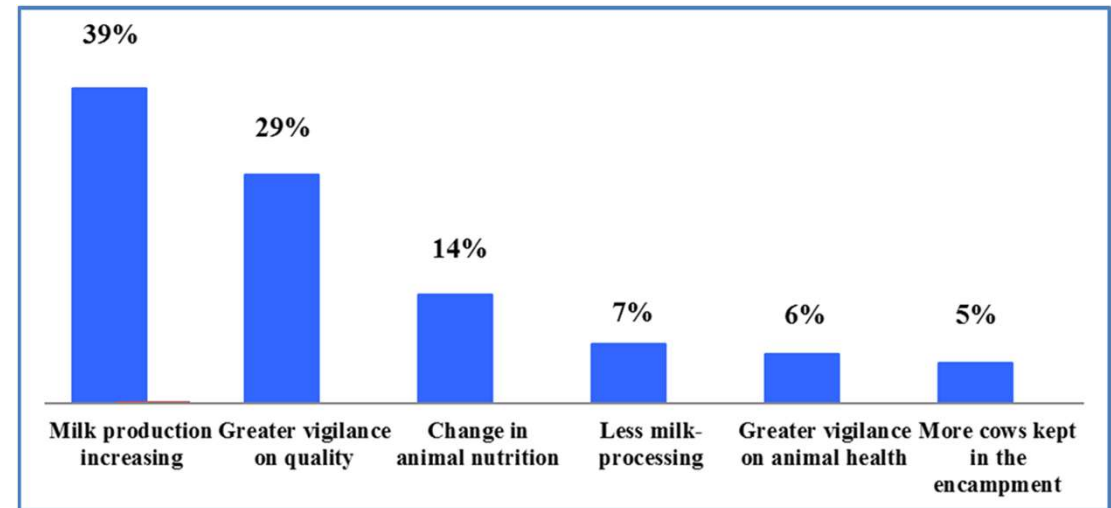


## 2. Why looking for Multifunctionality of Pastoralism?

### ○ Individual functions of pastoralism :



(Vigne 2013) ■ Efficience émergétique



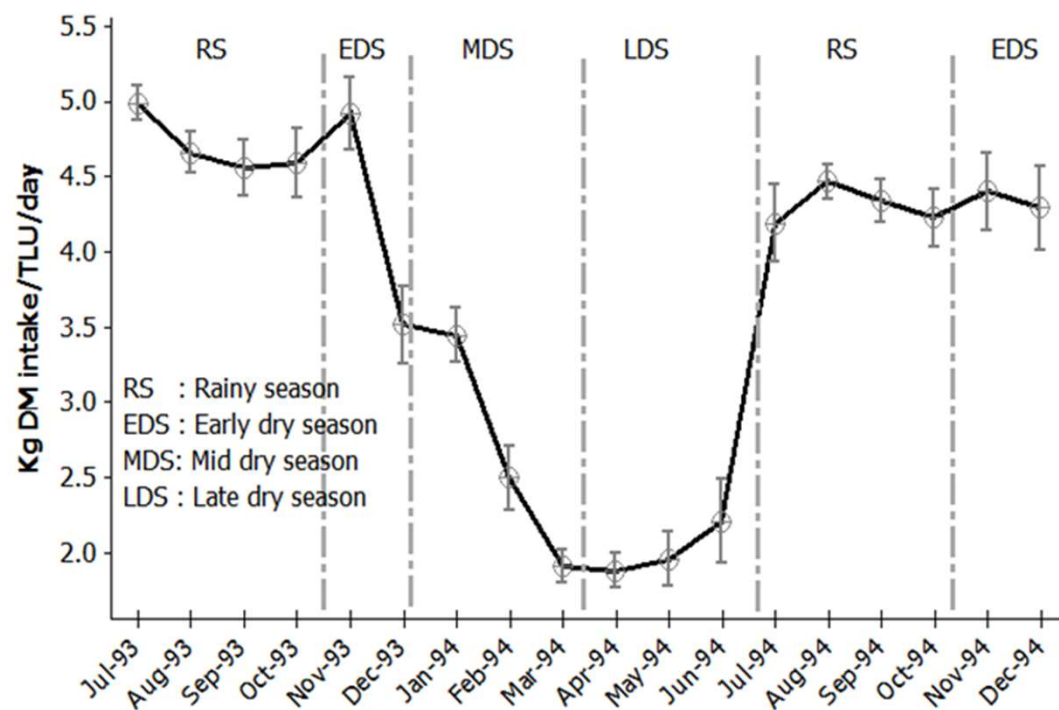
Increase income and Food Security

(Wane et al. 2016)



## 2. Why looking for Multifunctionality of Pastoralism?

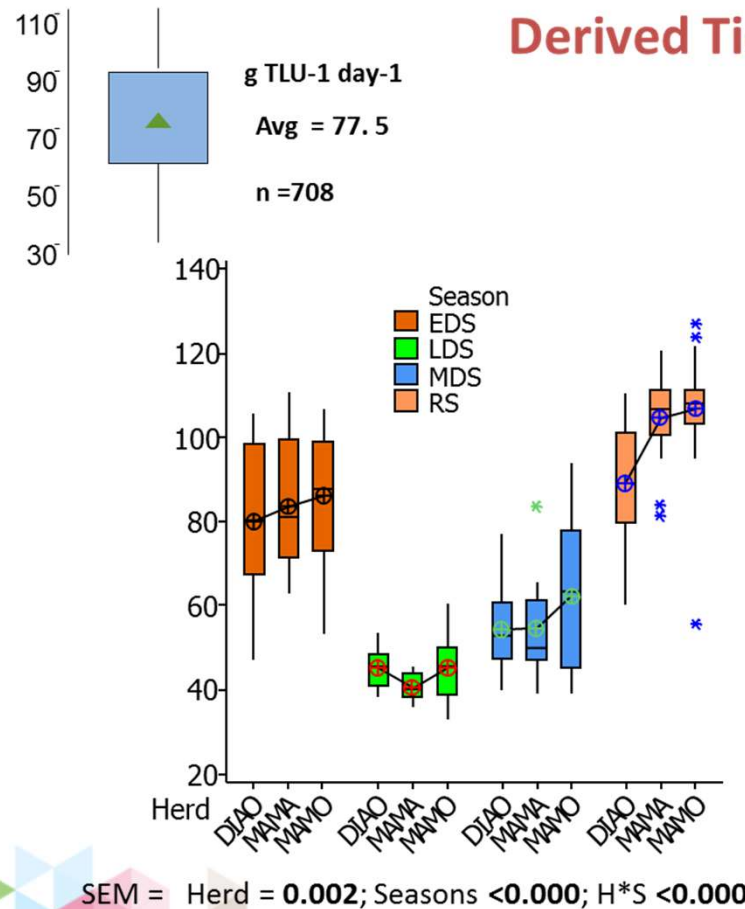
### Opportunity for intensification



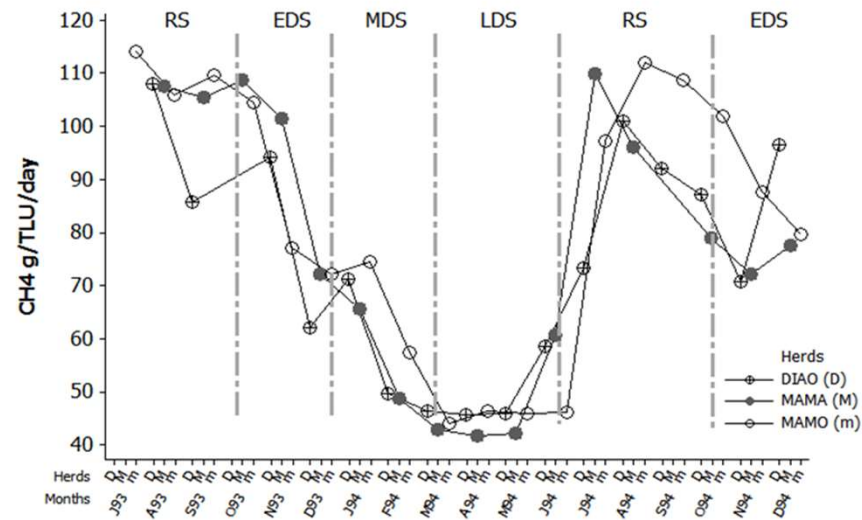
(Lecomte et al. 2016)



## 2. Why looking for Multifunctionality of Pastoralism?



### Derived Tier3 CH<sub>4</sub> emissions



$$\sum_{1}^{365} (CH_4) g \text{ day}^{-1} = 26.6 \text{ kg yr}^{-1}$$

Tier 1 default EF = 46 kg yr<sup>-1</sup>

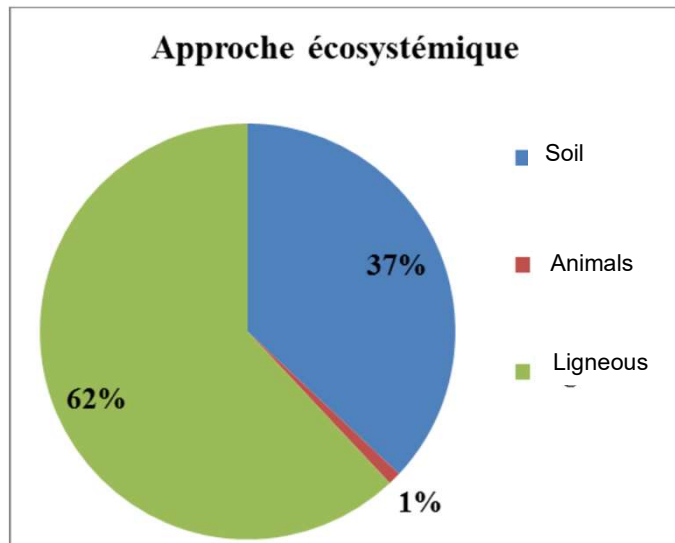


(Lecomte et al. 2016)



## 2. Why looking for Multifunctionality of Pastoralism?

### Global balance of GHG Emissions in Pastoral semi-arid Systems



Carbon stocks in pastoral ecosystems  
(kt eq.CO<sub>2</sub>/an)



**A Sink : Slight negative global balance of - 0,09 t eq.CO<sub>2</sub>/ha/an**

**(Assouma et al. 2016)**

### 3. Methodology

**Design an integrated methodological framework for assessing the contribution of grassland systems to multiple functions and values in relation to the SDGs and test on ground**

- Literature review : 2016
- Conceptual model : Participative approach (Montpellier May 2016, IRC Canada July 2016)
- Participative films : mid 2016 - 2017
- Test and develop with partners on the field (WS and pilot sites)



# 4. Result

## A Conceptual Model to describe Multifunctionality of Pastoralism

4 dimensions

**Social**  
point of view



**Local development**  
point of view



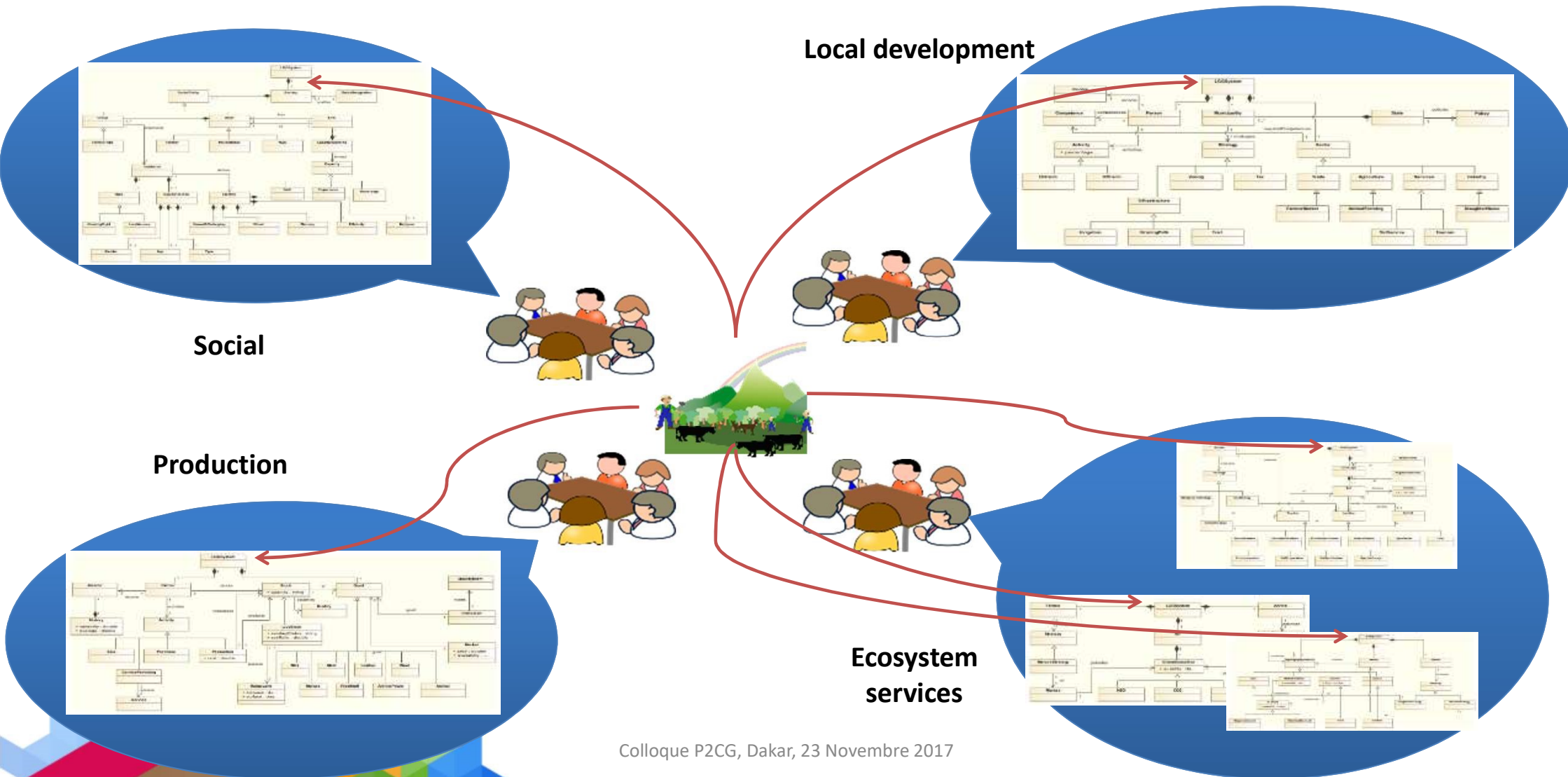
**Production**  
point of view



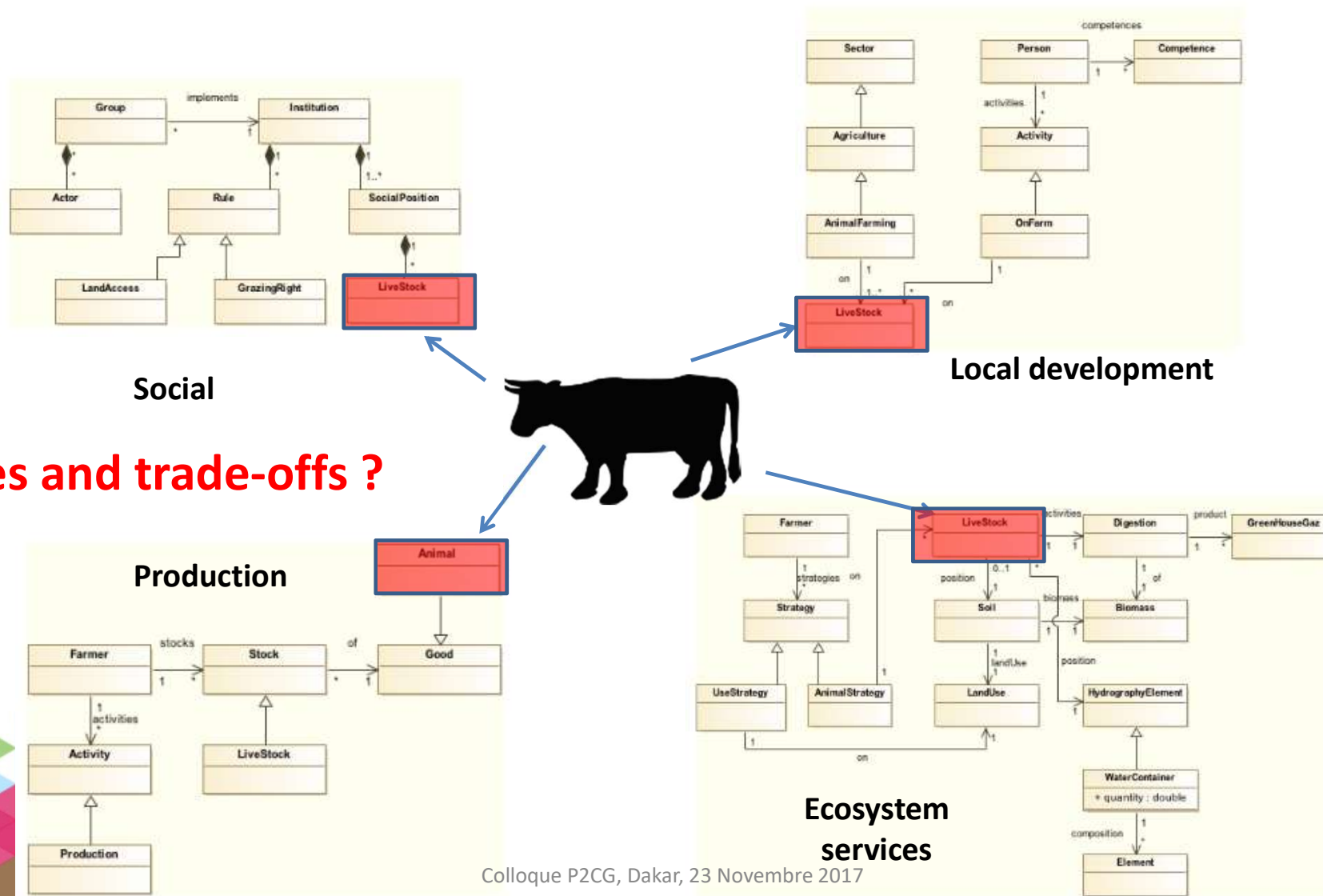
**Ecosystem services**  
point of view



# Conceptual Model with 4 dimensions : Detailed components and processes for each value set

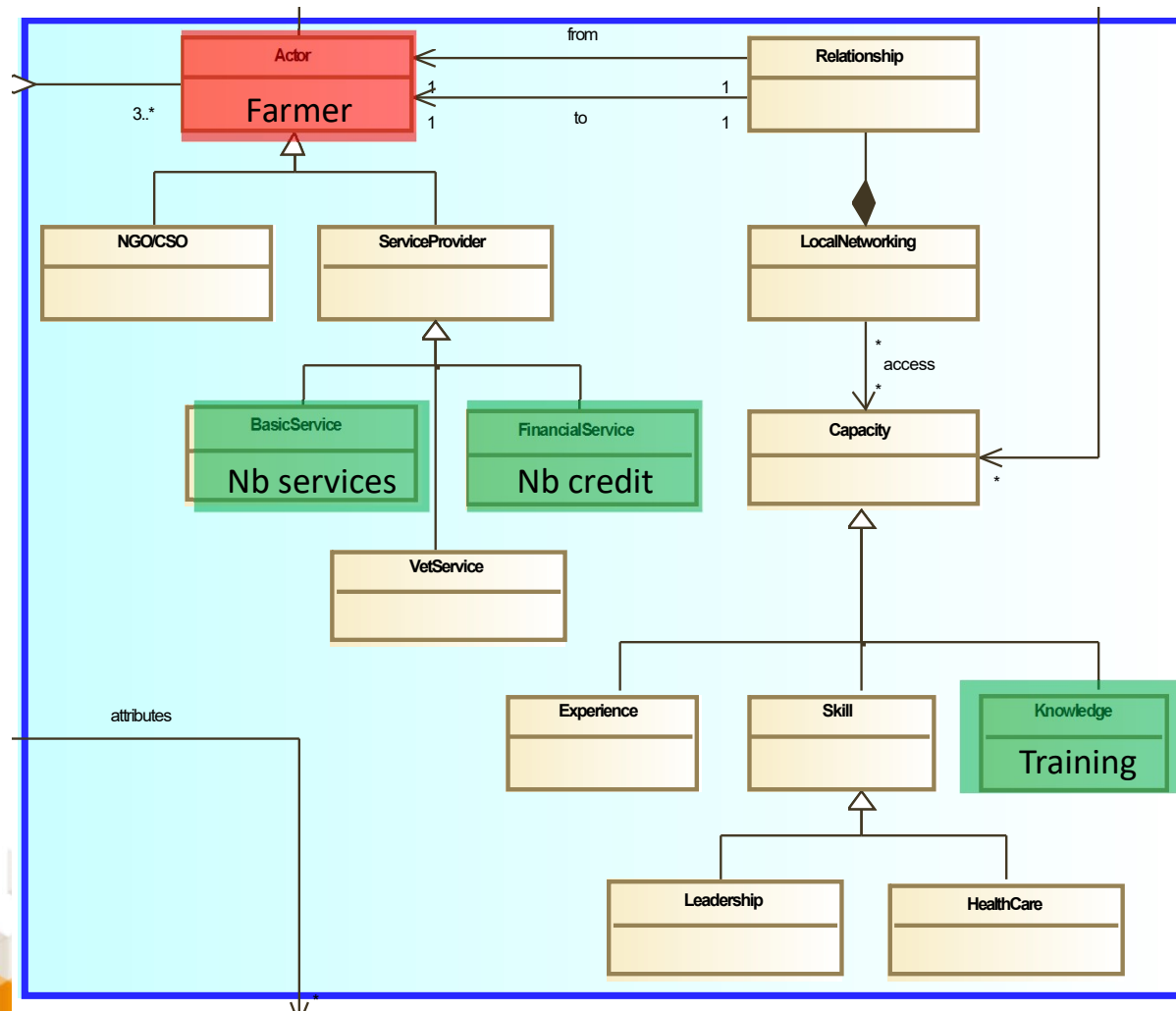


# Conceptual Model: Contribution of livestock to the values



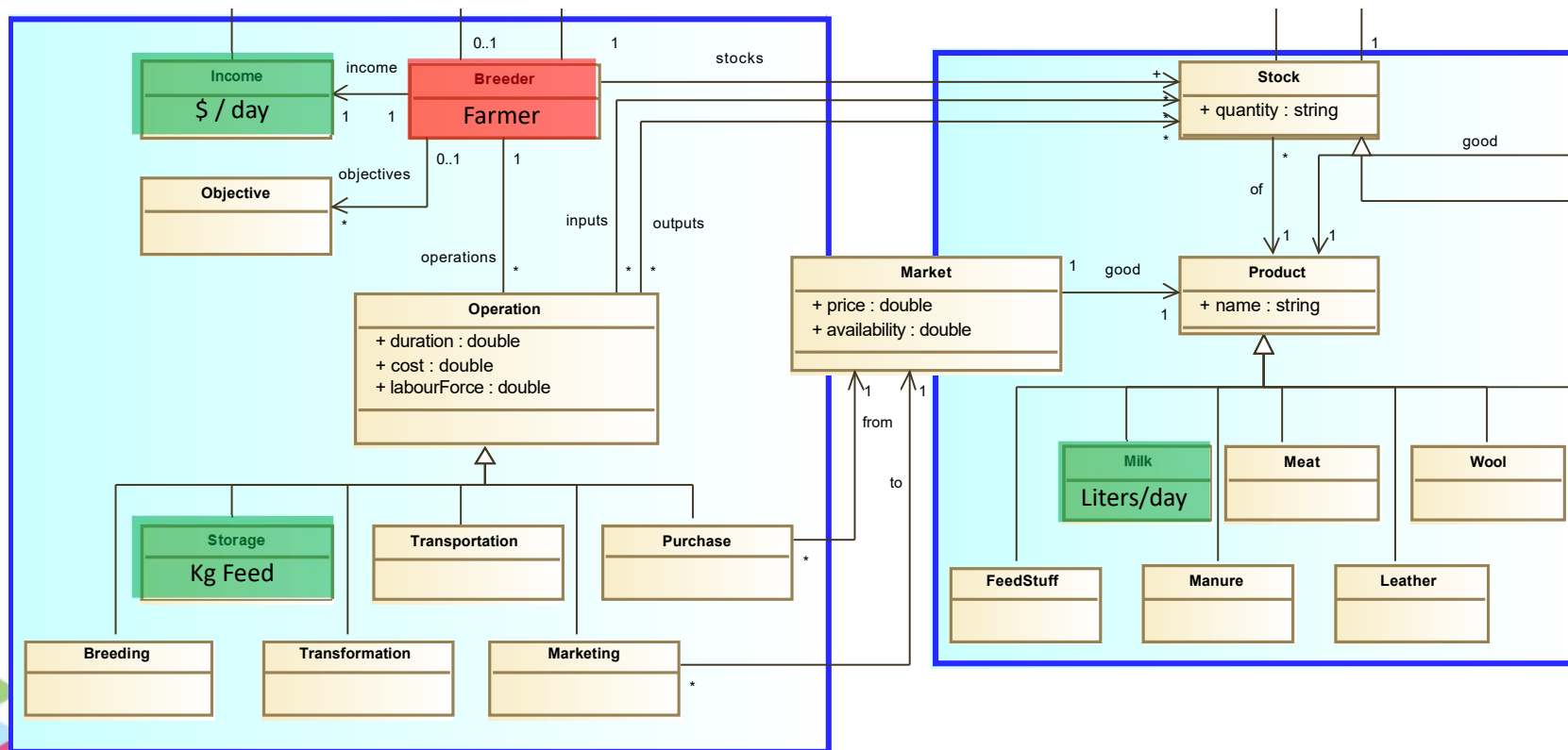
**Synergies and trade-offs ?**

# Assess Social values

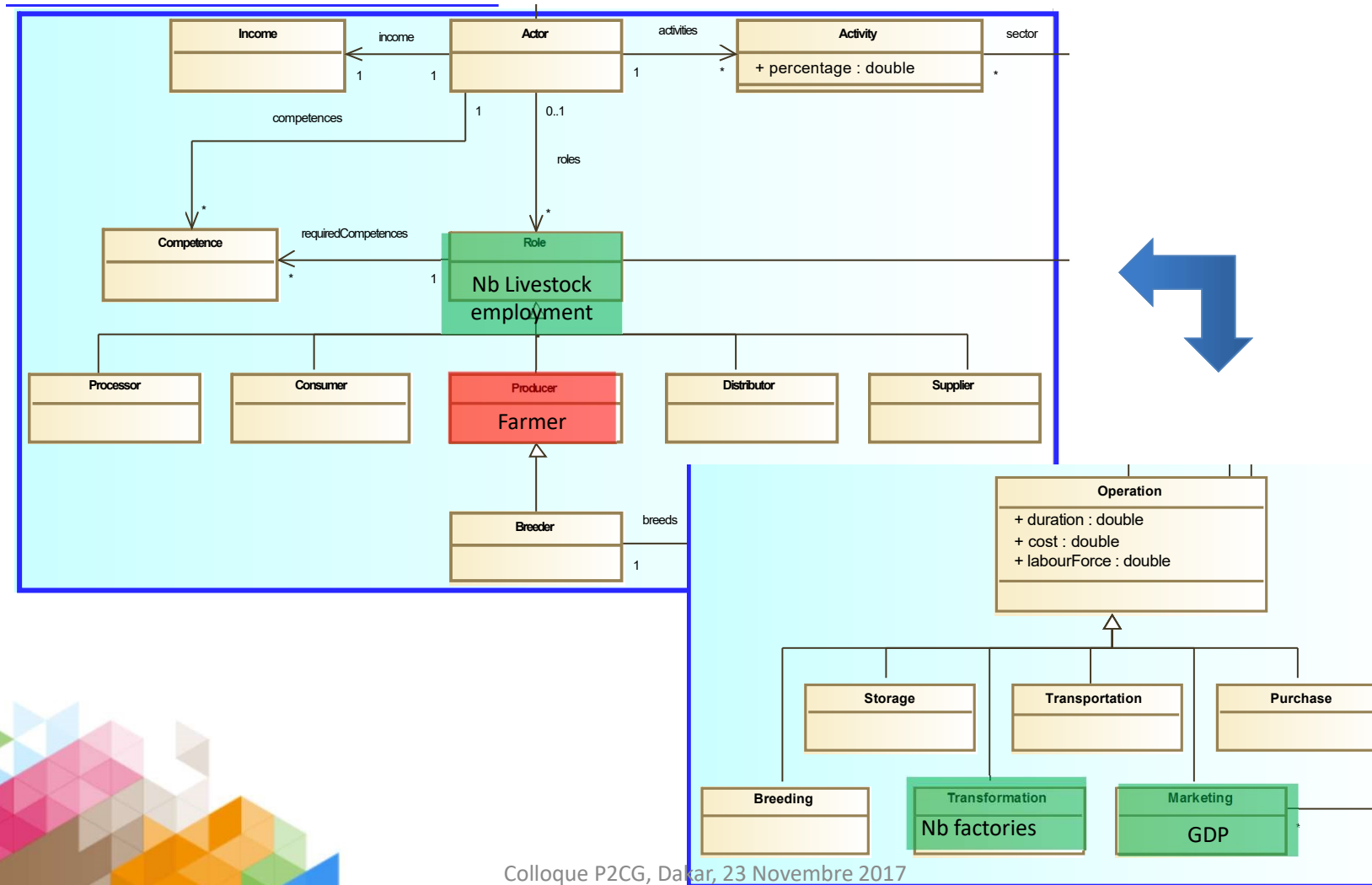




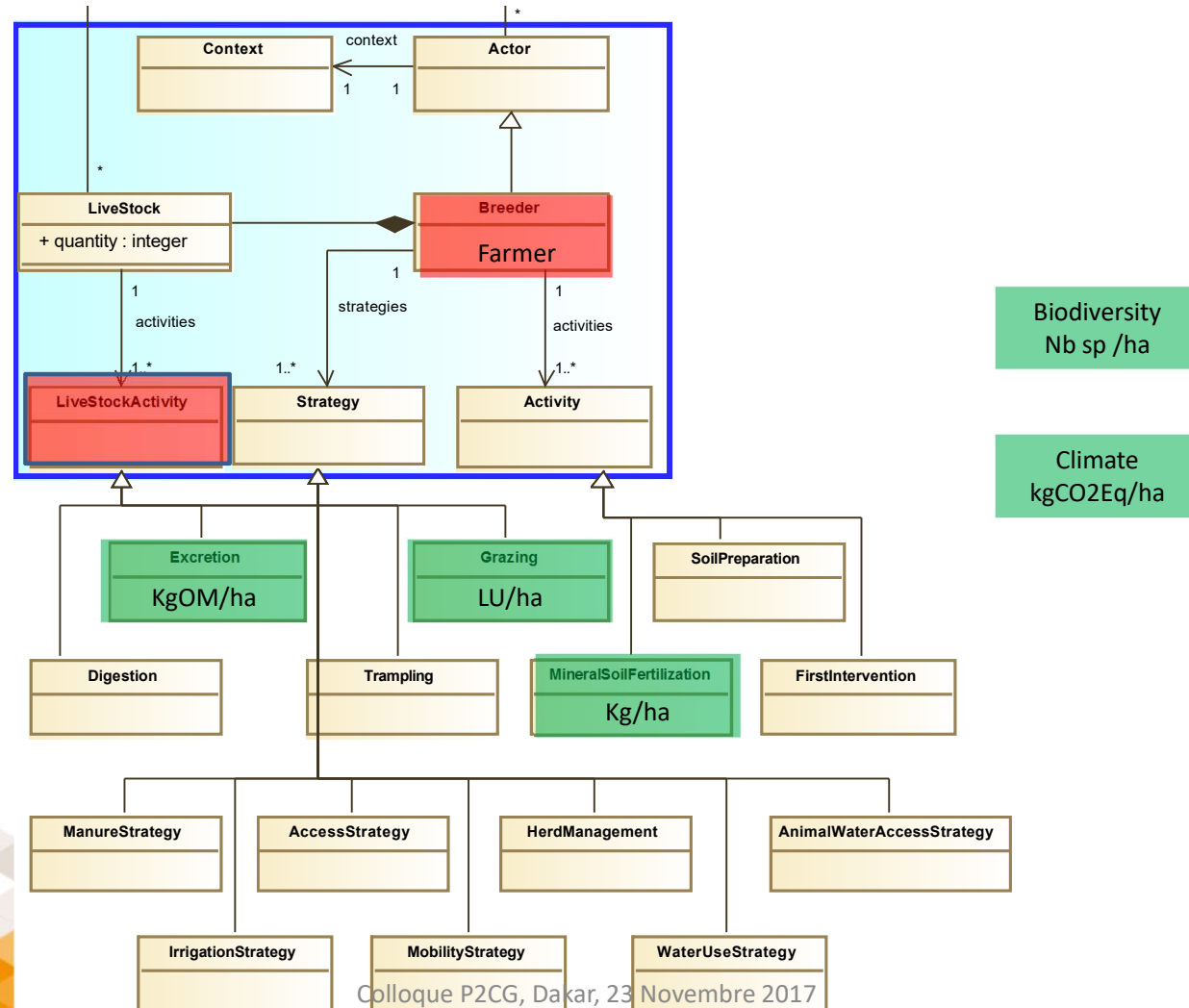
# Assess Production values



# Assess local development values

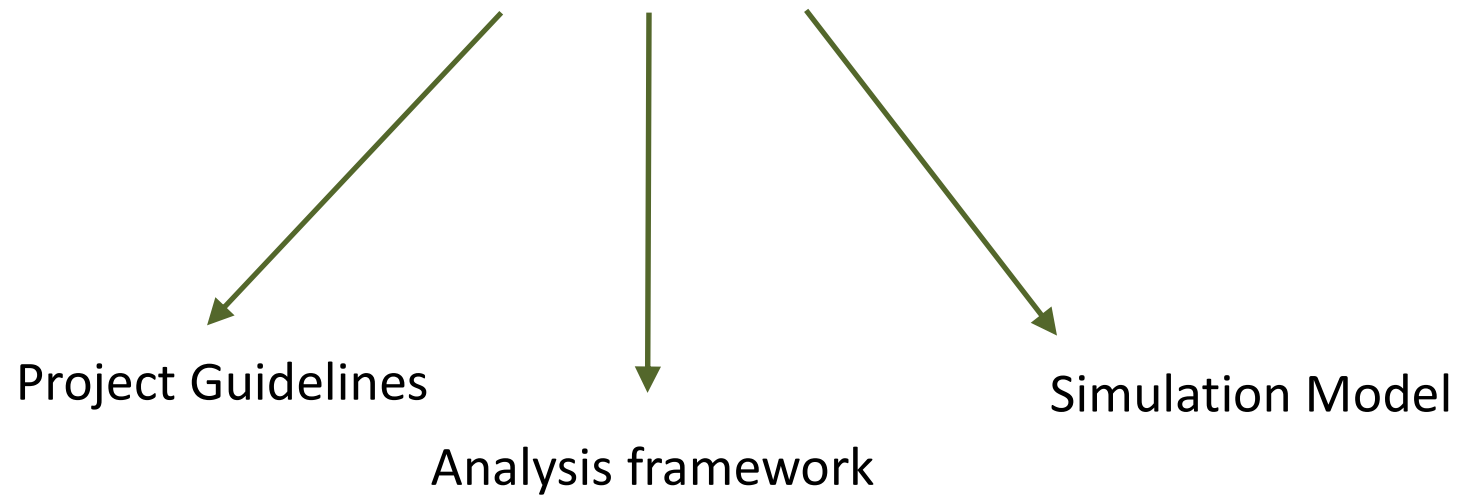


# Assess ecosystem values

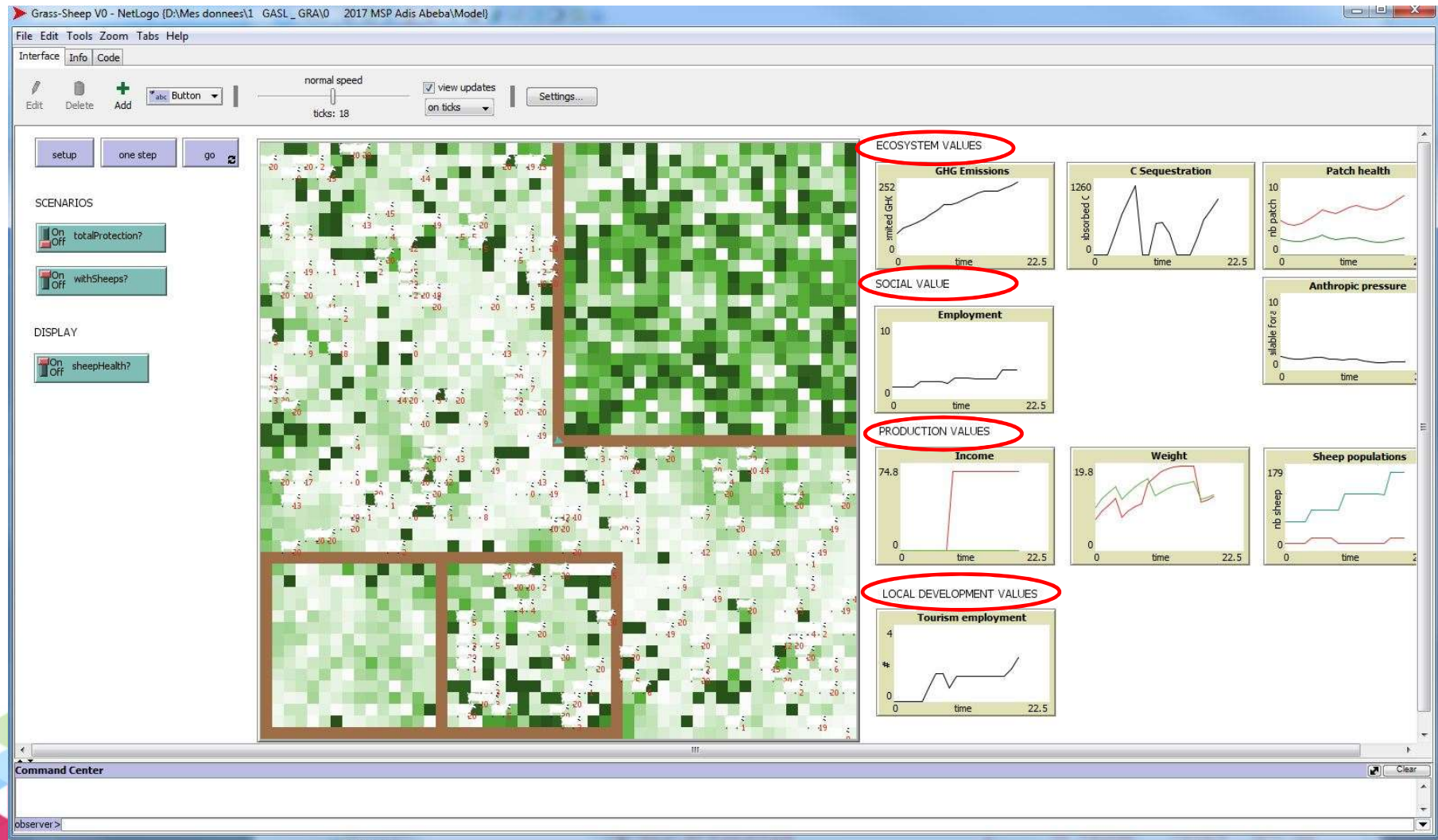


## 5. *Usefulness and relevance of the MCM*

### **Multifunctionality Conceptual Model**



# Simulation Model: Contribution of livestock to the values



## 6. Next steps

### Next steps

- Improve the conceptual model : workshop, film, forum theatre
- Apply on pilot sites : surveys, modelling, interview.....>>> interactions, synergies, trade-offs, indicators
- Finalise a generic conceptual model
- Develop applications : guidelines; analysis framework; simulation models
- Synthesis and communicate on multiple functions and values of grassland
- Document and website





# Thank you



Colloque P2CG, Dakar, 23 Novembre 2017